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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/633,473	08/07/2000	Kishan B. Shah	1151	4627

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EXAMINER

DASTOURI, MEHRDAD

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 11/05/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/633,473

Applicant(s)

SHAH, KISHAN B.

Examiner

Mehrdad Dastouri

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 July 2003 and 11 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5,7-12 and 14-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-12 and 14-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

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## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's amendments filed July 28, 2003 and August 11, 2003 have been entered and made of record.
2. Applicant's arguments have been fully considered but they are moot in view of new grounds of rejection. It should be noted that the teaching of prior art of record (Cushman et al) is related to character recognition by suggesting that digitally processed images of handwritten and machine-printed characters are more legible when the number of gray levels (intensity resolution) was increased from two to eight resulting decrease in the error rate for character recognition (Column 1, Lines 41-56).
3. Objection to Claim 4 has been withdrawn in view of Applicant's amendment.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5, 7-10, 12 and 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cushman et al (U.S. 5,905,820) in view of Melen et al (U.S. 5,867,277).

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Regarding Claim 1, Cushman et al disclose a method of text-recognizing at least one text object in a digitized representation of an image, the method comprising the steps of:

receiving the digitized representation of the image, the representation having a first resolution (Figure 2, Step 24);

creating a reduced-resolution version of the image from the digitized representation of the image, the reduced-resolution version of the image having a second resolution lower than the first resolution (column 2, Lines 3-6; Figure 2, Step 30; Column 3, Lines 65-67, Column 4, Lines 1-7);

identifying at least one text-recognition parameter for text-recognition processing using the reduced resolution version of the image (Figure 2, Step 34; Figures 9 and 10; Column 4, Lines 11-22; Column 5, Lines 10-34. Threshold sets  $t_1=32$ ,  $t_2=64$  and  $t_3=128$  are examples of recognition parameters utilized for discriminating different types of text); and

text-recognizing the at least one text object represented in the digitized representation of the image having the first resolution, based on the at least one text- recognition parameter (Figures 4-7, 9 and 10; Column 5, Lines 10-67, Column 6, Lines 1-18).

Cushman et al disclose utilizing versions of the digitized representation of the document image having different resolution for character recognition. However, Cushman et al do not explicitly disclose recognizing characters.

Melen et al disclose a method of utilizing reduced resolution of documents for character recognition (Figures 1(a)-1(c), 8, 14; Column 16, Lines 50-67,

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Column 17, Lines 1-10; Figure 17; Column 18, Lines 62-67, Column 18, Lines 1-23).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Cushman et al invention in accordance with the teachings of Melen et al to utilize versions of the digitized representation of the document image having different resolution for character recognition because it will improve the accuracy of the character recognition system and will provide more reliable recognition results.

Arguments analogous to those presented for Claim 1 concerning recognition of characters in the recognized text are applicable to the following Claims 2-5, 7-12 and 14-19.

Regarding Claim 2, Cushman et al further disclose the method according to Claim 1 wherein said identifying step comprises the steps of:

providing a plurality of sets of at least one parameter (Figures 9 and 10; Column 5, Lines 35-57);

identifying each confidence level of text-recognition by attempting to text-recognize from the reduced-resolution version of the image the at least one text object based on the at least one parameter (Figures 4-7, 9 and 10; Column 5, Lines 10-67, Column 6, Lines 1-18. Confidence level of recognition is identified based on the frequency of different gray level values in an area under consideration. For text, confidence level of recognition comprises of large number of pixels with a very dark gray level and a large number of pixels with a

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very light gray level. A histogram with these characteristics provide a high confidence value for recognition of the text in the document.); and

selecting the at least one text-recognition parameter based on the confidence levels identified (Column 5, Lines 22-35).

Regarding Claim 3, Cushman et al further disclose the method according to Claim 2 wherein said selecting step comprises selecting the least one text-recognition parameter corresponding to a highest confidence level from a plurality of the confidence levels identified (Figures 4-7, 9 and 10; Column 5, Lines 10-67, Column 6, Lines 1-18).

Regarding Claim 4, Cushman et al disclose the method according to Claim 2 wherein said selecting step comprises selecting the at least one text-recognition parameter corresponding to a confidence level (Figures 4-7, 9 and 10; Column 5, Lines 10-67, Column 6, Lines 1-18).

Cushman et al do not explicitly consider the confidence level exceeding a threshold.

Identifying a threshold for the selected parameter confidence level is a normal procedure well known in the art (Official Notice).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Cushman et al and Melen et al combination to identify a threshold for confidence level because it is the designer choice based on the experimental results that select the optimum parameter and will reduce the amount the data to be processed and expedite the processing time accordingly.

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Regarding Claim 5, Cushman et al further disclose the method according to Claim 1 wherein said creating step creates the reduced version of the image by calculating an average of at least one value of a plurality of pixels of the digitized representation of the image (Column 2, Lines 3-6).

With regards to Claim 7, it is the standard procedure in iterative image processing to judge whether a confidence level of character recognition is acceptable and repeat the iterative step of character recognition if the confidence level is not acceptable (Official Notice).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Cushman et al and Melen et al combination to judge whether a confidence level of character recognition is acceptable and repeat the iterative step of character recognition if the confidence level is not acceptable because it is the conventional methodology routinely implemented in iterative processes.

With regards to Claim 8, arguments analogous to those presented for Claim 1 are applicable to Claim 8.

With regards to Claim 9, arguments analogous to those presented for Claim 2 are applicable to Claim 9.

With regards to Claim 10, arguments analogous to those presented for Claim 3 are applicable to Claim 10.

With regards to Claim 11, arguments analogous to those presented for Claim 4 are applicable to Claim 11.

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With regards to Claim 12, arguments analogous to those presented for Claim 5 are applicable to Claim 12.

With regards to Claim 14, arguments analogous to those presented for Claim 7 are applicable to Claim 14.

With regards to Claim 15, arguments analogous to those presented for Claims 1 and 4 are applicable to Claim 15. Melen et al further disclose character-recognizing at least one first and one second object represented in the digitized representation of the image (Figures 8 and 14; Column 16, Lines 50-67, Column 17, Lines 1-10; Figure 17; Column 18, Lines 62-67, Column 18, Lines 1-23).

With regards to Claim 16, arguments analogous to those presented for Claim 2 are applicable to Claim 16.

With regards to Claims 17-19, arguments analogous to those presented for Claims 1, 4 and 7 are applicable to Claims 17-19. Cushman et al further disclose different types of gray scale thresholds (different sets of parameters) for text-recognition (Figures 1 and 6-10; Column 3, Lines 21-28; Column 4, Lines 8-28). Melen et al further disclose identifying character recognition parameters for plurality of objects (plurality of characters as depicted in Figures 17 and 19) plurality of times (Figures 1(a)-1(c), 8, 14; Column 16, Lines 50-67, Column 17, Lines 1-10; Figure 17; Column 18, Lines 62-67, Column 18, Lines 1-23).

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.**



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See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mehrdad Dastouri whose telephone number is (703) 305-2438. The examiner can normally be reached on Monday to Friday from 8:00 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology Center Customer Service Office whose telephone number is (703) 306-0377.

**MEHRDAD DASTOURI**  
**PRIMARY EXAMINER**



Mehrdad Dastouri  
Primary Examiner  
Group Art Unit 2623  
October 31, 2003